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Developing and validating instruments for measuring democratic climate of the civic education classroom and student engagement in North Sulawesi, Indonesia

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Using the Rasch Rating Scale model, data collected from 200 ninth grade students in North Sulawesi Indonesia were analysed. This analysis sought to validate instruments developed to measure the Democratic Climate of Civic Education Classrooms (DCCEC) and Student Engagement in Civic Education Classrooms (SECEC). Category used, item and person separation reliability (ISR and PSR), item and person separation index (ISI and PSI), item ordering, person and item fit were examined in the analysis. The results indicated the reliability of items to be used in other studies that involved students from classrooms with similar climates.

Civic education, democratic climate, classroom engagement, Rasch rating scale analysis

As a new democratic country, Indonesia needs to improve democratic values among young people through its education system. These values could only be nurtured effectively in a context that allowed them to be understood, appreciated and applied. As the classroom is the centre of the learning process in Indonesia, the classroom needs to be democratic and engaging in order to make learning in it meaningful. In order to evaluate both attributes, it is important to have valid instruments for measuring them.

This study sought to develop and validate instruments for measuring the degree of democratic climate of the civic education classroom and of students' classroom engagement. Measures for the democratic climate of classrooms and student engagement were developed based on published literature and operationalised using a descriptive type Likert scale with four categories (*0=never; 1=rarely; 2=sometimes; 3=often*). Instrument testing involved 200 Grade 9 students (n=200) in North Sulawesi, Indonesia.

Before using both instruments in further studies, it was necessary to examine their reliability and validity. For this purpose, responses were analysed using the Rasch Rating Scale model. The analysis involved category used, item and person separation reliability (ISR and PSR), item and person separation index (ISI and PSI), item ordering, person and item fit.

LITERATURE REVIEW

Democratic Climate of Classroom

Fraser and Walberg (1991) viewed learning environments as social-psychological contexts where learning took place (2001). Johnson and McClure (2004) defined the classroom learning environment as a social atmosphere in which learning took place that was sometimes called the 'educational environment' or 'classroom climate'. Kubow and Kinney (2000) argued that classroom climate was related to how teaching was conducted in the classroom setting. More

specifically, Moos (1979) conceptualised it as a system that had four variables, namely physical environment, organisational aspects, teacher characteristics, and pupil characteristics and the classroom climate was viewed as the mediator between these variables that operated through interactions among class members, teachers and students. This process was influenced by the orientation, the quality and the quantity of interactions and intercommunications between the classroom members (Allodi, 2002). These in turn affected student satisfaction, self-concept and the learning processes that influenced learning outcomes.

Research into classroom environments has been carried out over many years. Different studies have been undertaken to investigate a variety of aspects related to the effects of the classroom environment. These studies have ranged from investigating factors influencing learning environments to the students' perceptions of their classrooms, and the relationship between students' perceptions of their classrooms and their learning outcomes. These studies have been extended to cover schools and families (Parsons, 2002). In addition, the research workers have conducted studies about the effects of the classroom environment on the learning of different subject matter in different parts of the world. Aikin (1942) studied the effects of democratic processes in the classrooms and the schools in The Eight Year Study in the United States (Morgenstern and Keeves, 1997). Kim, Fisher and Fraser (1999) investigated science classroom environments; Waldrip and Fisher (2003) investigated the differences between urban and country students' perceptions of their learning environments (Dorman, 2003); and Guthrie and Cox (2001) investigated the school and classroom context that would make students want to engage in reading longer.

From learning environment studies, several theories have been developed and used to investigate psychological aspects of learning environments. Those theories are Lewin's (1951) field theory (Rosch, 2002), Bandura's (1986) social cognitive theory (Compeau, Higgins and Huff, 1999) and Bronfrenbrenner's (1977) ecological model of human development, and Watzalawick's theory of human communication (Allodi, 2002; Watzlawick, Beavin and Jackson, 1968).

Kubow and Kinney (2000) developed eight characteristics for a democratic classroom to foster democracy in the classroom. These characteristics were: (a) active participation; (b) avoidance of textbook dominated instruction; (c) reflective thinking; (d) student decision-making and problem-solving choices; (e) controversial issues; (f) individual responsibilities; (g) recognition of human dignity; and (f) relevance. These characteristics would appear to be meaningful and feasible to employ because they represented the nature of civic education. The use of these characteristics made it possible to identify a classroom that was capable of providing students with open, active, and engaging classroom learning experiences.

Student Engagement

Research workers in this field have divided engagement in classroom learning into three categories, namely behavioural, cognitive, and emotional engagement. Behavioural engagement consisted of actions, such as, following the rules, adhering to the classroom norms, and the absence of disruptive behaviours, for example, skipping school or getting into trouble, participating in classroom learning and academic tasks, persistence, effort, attention, asking questions, and participating in school-related activities. Emotional engagement included students' positive and negative affective reactions in the classroom, students' emotional reactions to the school and the teacher, feeling of being important to the school, and valuing success in school-related outcomes. Cognitive engagement was conceptualised in terms of a psychological investment in learning, a desire to go beyond the requirements of school, and a preference for challenge through being strategic or self-regulating (Fredricks, Blumenfeld, Fiedel, and Paris, 2003; Fredricks, Blumenfeld, and Paris, 2004).

Studies have been undertaken to identify the correlation between behavioural engagement and learning outcomes for elementary and high school students (e.g. Alexander *et al.*, 1993; Alexander *et al.*, 1997; Alvermann *et al.*, 1987a; Alvermann *et al.*, 1987b; Ames, 1992; Ames and Archer, 1988; Conchas, 2001; Finn *et al.*, 1991; Finn *et al.*, 1995; Finn and Rock, 1997; Finn and Voelkl, 1993; Guthrie and Cox, 2001; Guthrie *et al.*, 2001; Guthrie and Wigfield, 2000; Meece, 2003; Miller and Meece, 1997; Miller and Meece, 1999; Voelkl *et al.*, 1999; Walberg, 1979). Other studies have focused on the correlation between discipline problems, behavioural disengagement and achievement across grade levels (e.g. Aikins *et al.*, 2005; Barker and Gump, 1964; Bates *et al.*, 2003; Battistich *et al.*, 2000; Chang, 2003; Chen *et al.*, 2005; Connell *et al.*, 1994; Conrad, 2004; Denham *et al.*, 2003; Finn, 1989; Finn and Pannozzo, 2004; Fredricks and Eccles, 2002; Furrer and Skinner, 2003; Kern *et al.*, 2001; Khine and Fisher, 2004; Ladd *et al.*, 1999; Luster *et al.*, 2004; Meehan *et al.*, 2003; Snyder *et al.*, 2003; Spira and Fischel, 2005; Valeski and Stipek, 2001; Wentzel, 1997). The pronounced finding was that behavioural engagement had long-term effects on student performance. The students who were found showing engagement and interest in their early grade levels were also found to be performing better in their later years (Fredricks *et al.*, 2003).

Brown (1997), Turner and Scott (1995) emphasised that social discourse in learning communities was intrinsically motivating. Furthermore, Wentzel (1991, 1997, 2002, 2003), Urdan and Maehr (1995) demonstrated that students' possession of pro-social goals led to their constructive social behaviours in the classroom. Fredricks, Blumenfeld, Field and Paris (2002) found that there was a unique relation of a challenging and a structured work environment involving students' affect, behaviour and cognition. Skinner and Belmont (1993) also found that there was a reciprocal relationship between teacher behaviour and student engagement in the classroom. Teacher interactions with students predicted student behavioural and emotional engagement in the classroom, both directly and through their effects on student perceptions of their interactions with teachers. In addition, Kindermann (1993) and Wentzel (2002) argued that there was an association between children peer groups and the amount of engagement the children showed in the classroom.

Palinscar (1998) in his analysis of the theory of constructivism claimed that the growing interest in social constructivist perspectives was propelled by recent educational reform efforts encouraging students to assume a more active role in their learning, to explain their ideas to one another, to discuss disagreements, and to cooperate in the solution of complex problems, while teachers participated in the design of these contexts and the facilitation of this kind of activity. From social constructivist perspectives, according to Palinscar, interactions such as those achieved through classroom discussions were thought to provide mechanisms for enhancing higher-order thinking. In addition, discourse was argued to be the primary symbolic, mediational tool for cognitive development. However, to make it an effective context for learning, discourse must be communicative.

Ryan and Patrick (2001) reported that there was some research supporting the argument that the social environment of the classroom would be very important for students' motivation and engagement. Students who felt that they related to schools were more likely to have positive expectancies for success and appreciation of schools (Roeser, Midgley and Urdan, 1996). In addition, compared to traditional formats, classes organised cooperatively would increase efficacy, value, and the goal orientation of students (Turner, Meyer, Cox and Logan, 1998).

Ryan and Patrick (2001) also argued that students would feel more efficacious about their ability to learn and to complete activities successfully when they had a greater array of resources on which to draw than if they were only working individually. This emphasised the importance of collaborative learning (Randolph, 2000; Wentzel, 2002).

Greeno (1998) argued that engagement in activities also depended on the interactions of individuals with other people. Belenky (1997) studied activities in which women were supported in their participation in reflective problem solving and planning about themselves. She reported substantial changes in these women becoming more active and confident in their thinking and in their claims to understanding and knowing. Clark, Anderson, Kuo and Kim *et al*. (2003) also argued that collaborative discussions could facilitate children to engage in reasoned argumentation.

Regardless of the distinctions made between different types of engagement, research has indicated the importance of student engagement in the classroom and school for both academic success and discipline. There was also a strong indication that the classroom and school environment played a social and psychological role to facilitate learning among students by providing conducive contexts.

Based on these research studies, it is argued to be important to make students engage in learning activities in civic education classrooms in order to provide them with opportunities to obtain deeper understanding of the civic values transmitted through meaningful classroom experiences in order to enable them to implement them critically and responsibly in their social interactions.

Even though research has shown that discussions in an open climate fostered civic learning of the students, research studies have not specifically investigated the effect of the democratic climate of classrooms on student civic learning. Furthermore, even though studies have been undertaken into the effects of student engagement on science learning, there has been no study conducted to investigate the effects of engagement on the civic learning of the students. This information becomes even more meaningful when it is linked to civic education programs in Indonesian schools that have sometimes been said to be unproductive in supporting democracy and civic learning.

In order to achieve this goal, it is important to develop instruments to measure the Democratic Climate of the Civic Education Classroom (DCCEC) and Student Engagement in Civic Education Classroom (SECEC) for use in Indonesian schools.

INSTRUMENT DEVELOPMENT

Using the literature on the democratic climate of classroom and student engagement (Fredricks *et al.*, 2002, 2003, 2004; Kubow and Kinney, 2000, Torney-Purta, Oppenheim and Farnen, 1975; Torney-Purta, Lehmann, Oswald, and Schulz, 2001; Torney-Purta, 1984) measures were developed. Eight characteristics of a democratic classroom proposed by Kubow and Kinney (2000) were modified to form seven scales to measure student perceptions of the Democratic Climate of Civic Education Classrooms. In constructing items for those seven scales, some items that were used in the IEA study for Civic Education in 2001 were adapted with some modification.

The Student Engagement measures were adapted from the scales developed by Fredricks *et al.* (2003) that were basically used to assess primary school student engagement. Modification was done on this scale to suit the need for measuring classroom engagement in civic education classrooms for ninth grade students in North Sulawesi, Indonesia.

Democratic Climate of Classrooms

This scale was hypothesised to involve seven dimensions: (a) Active participation; (b) Avoidance of textbook dominated instruction; (c) Reflective thinking; (d) Student decision-making and problem-solving choices; (e) Controversial issues; (f) Recognition of the human dignity; and (g)

Relevance. The instrument consisted of 33 items using a Likert four-point scale (0=*never, 1=rarely, 2= sometimes, 3= often*).

Student Classroom Engagement

This scale consists of three hypothesised dimensions.

Behavioural engagement

This dimension represented participation in classroom learning and academic tasks such as paying attention, asking questions, participating in classroom activities, and absence of disruptive actions.

Emotional engagement

This dimension represented students' positive and negative affective reactions in civic education classrooms, such as feeling of interest, boredom, happiness, sadness, and anxiety.

Cognitive engagement

This dimension represented psychological investment in learning involving self-regulation, or being strategic (Fredricks *et al*., 2003). These three dimensions were measured by an instrument consisting of 19 items using a Likert four-point scale (*0=never, 1=rarely, 2= sometimes, 3= often*).

Those items were initially written in English and subsequently translated into Bahasa Indonesia because the respondents were Indonesian-speaking students. Unfortunately, no back-translation validation was done to check the accuracy of the initial translation of the items from English into Bahasa Indonesia.

INSTRUMENT VALIDATION

Sample

The sample consisting of 200 ninth grade students was a convenience sample. They were selected from five different schools with a different number of students in four different regencies in North Sulawesi, Indonesia. The questionnaire was given to the students when they were approaching their final examination to enter Senior High Schools.

Rating Scale

In order to test the unidimensionality of the scale, a rating scale model was employed. The rating scale analysis is one of the Rasch measurement model procedures that is similar to the partial credit model. The difference is that it does not allow item format, categories and scale step values to vary across items (Fox and Jones, 1998; Huang and Page, 2002).

Reliability

Using the Rasch model, both item separation index (ISR) and person separation reliability (PSR) can also be estimated (Wright and Masters, 1982). Person separation reliability is an estimate of how well a person can discriminate persons on the measured variable. This represents the replicability of person placement across other items measuring the same construct (Bond and Fox, 2001). Reliability is assessed using the Cronbach alpha coefficient. According to Wright and Master, PSR is calculated as

$$R_p = \frac{SA^2{}_p}{SD^2{}_p}$$

where SA_p^2 is person variance adjusted for calibration error and SD_p^2 is the total observed variance among persons on the measured variable. The expected value that indicates perfect reliability is 1.0 (Fox and Jones, 1998).

The interpretation of the person separation reliability suffers from problems when the items fail to work together to define a single variable that leads to the usage of an alternative index called person separation index (PSI). This is calculated as

$$G_p = \frac{SA_p}{SE_p}$$

where SA_p is the adjusted person standard deviation and SE_p is the average measurement error.

This concept provides the estimate of the sample standard deviation in standard error units (Wright and Masters, 1982). The person separation index is not bound by 0 and 1 and a higher value is a better index to differentiate persons on the continuum. These indices are useful to compare the use of different scales across different classroom situations (Bond and Fox, 2001; Fox and Jones, 1998). These ideas also apply in the formation of the item separation reliability (ISR) and the item separation index (ISI).

Category Used

Originally the instrument was administered using four response categories (0123). It was important to find out the best model for the scoring of the rating scale categories before running further analyses in order to obtain more reliable results and more meaningful interpretation of the data. In addition, it was essential to identify how and to what extent respondents used the rating scale categories (Fox and Jones, 1998, Bond and Fox, 2001).

In order to find out an appropriate category scheme, analyses based on the values of the estimated standard deviations, item and person separation reliabilities and item and person indices were compared. Appendix A presents the fit indices for all items at the first run of Rasch analysis and Appendix B presents the list of items examined.

There are five alternative scoring schemes with corresponding category meanings. The five schemes, as shown in Table 1, including the original one were constructed to test the quality of the measures. These five category scoring schemes were tested using Quest software (Adams and Khoo, 1993). However, this software did not provide item and person separation indices. As a result, each index was calculated manually using both estimates of standard deviation and adjusted standard deviation provided by Quest using the following formula

$$SA^2_i = SD_i^2 - MSE_i$$

where MSE_i is the mean square calibration error (Wright and Master, 1982, p. 91). The estimates for these different indices are rounded in Table 2. The analysis showed that for the Democratic Climate of Civil Education Classrooms (DCCEC) scale, the preferable schemes are 0012, 0112, and 0011 with person separation reliability (PSR) and person separation index (PSI) (0.76, 3.42), (0.72, 3.37), and (0.70, 2.46) respectively, whereas their item

separation reliability (ISR) and item separation index (ISI) are (0.97, 5.43), (0.97, 5.00), and (0.98, 6.71) respectively.

Table 1. Alternative scoring schemes and category meaning

Scoring scheme	Category meaning
0123	Four-category model 0 = never 1 = rarely 2 = sometimes 3 = often
0012	Three-category model 0 = never/rarely 1 = sometimes 2 = often
0122	0 = never 1 = rarely 2 = sometimes/often
0112	0 = never 1 = rarely/sometimes 2 = often
0011	Two-category model 0 = never/rarely 1 = sometimes/often

Table 2. Comparison of fit indices for alternative scoring schemes of the two classroom environment scales

Democratic Climate of Civic Education Classrooms														
Items/Persons														
Schemes	IMS	IMS *SD*	OMS	OMS *SD*	MI *t*	OM *t*	SA		RMSE		Adj. *SD*	RI	SI	
0123	1.01/ 1.01	0.22/0.28	1.04/ 1.04	0.27/0.35	-0.06/-0.04	0.14/0.14	0.67	0.95	0.26	0.46	0.45/0.90	0.96/0.75	2.58	2.07
0012	1.00/ 0.98	0.22/ 0.25	1.06/ 1.06	0.35/0.47	-0.38/-0.15	0.02/0.07	0.76	0.89	0.14	0.26	0.80/0.44	0.97/0.76	5.43	3.42
0122	1.09/ 1.07	0.17/0.26	1.13/ 1.13	0.28/0.49	0.81 /0.34	0.67/0.32	0.80	0.84	0.17	0.40	0.81/0.43	0.97/0.73	4.71	2.10
0112	0.99/ 0.99	0.21/ 0.30	1.01/ 1.01	0.24/0.33	-0.22/-0.12	-0.05/0.00	0.85	1.01	0.17	0.30	0.91/0.72	0.97/0.72	5.00	3.37
0011	1.00/0.99	0.08/ 0.16	1.01/ 1.01	0.25/0.64	0.00/-0.04	0.05/0.06	0.94	0.95	0.14	0.46	1.09/1.13	0.98/0.70	6.71	2.46
Student Engagement in Civic Education Classrooms														
Items/Persons														
Schemes	IMS	IMS *SD*	OMS	OMS *SD*	MI *t*	OM *t*			RMSE		Adj. *SD*	RI	SI	
0123	1.01/ 1.05	.21/ .44	1.00/ 1.00	0.27/0.38	0.10/0.05	-0.02/0.03	0.78	0.57	0.14	0.22	0.49/0.69	0.92/0.83	5.57	2.59
0012	1.00/ 1.00	.23/ .32	1.00/ 1.00	0.32/0.40	-0.23/-0.05	-0.11/0.04	0.89	0.66	0.10	0.26	0.58/0.80	0.94/0.83	8.90	2.54
0122	1.00/ .98	.12/ .32	.90/ .90	0.23/0.44	0.11/0.09	-0.34/0.02	0.9	0.66	0.14	0.26	0.64/0.70	0.90/0.66	6.43	2.54
0112	1.01/ 1.05	.21/ .44	1.00/ 1.00	0.27/0.38	0.10/0.05	0.09/0.06	0.95	0.68	0.10	0.30	0.73/1.02	0.93/0.83	9.50	2.27
0011	.99/ .98	.17/ .25	.94/ .94	0.29/0.51	0.03/0.07	-0.15/0.06	1.06	0.79	0.10	0.35	0.88/0.90	0.96/0.67	10.60	2.26
IMS=infit mean square				*t=t statistics*					*RI=reliability index*					
OMS=outfit mean square				*RMSE=root mean square error*					*SI=separation index*					
SD=standard deviation				*SA= item standard deviation*										

For the SECEC scale, the superior category schemes are the same as DCCEC scale. Their PSR and PSI are (0.83, 2.54), (0.83, 2.27), and (0.67, 2.26), whereas their ISR and ISI are (0.94, 8.90), (0.93, 9.50), and (0.96, 10.60) respectively.

ISR and ISI for both scales show superior reliability to PSR and PSI for measured variable. This indicates that item order was more reliable than person order (Fox and Jones, 1998), that are direct consequences of having more persons than items being involved in the measurements made.

In running the next analysis, model 0011 (*never/rarely, sometimes/often*) was selected for the DCCEC scale and Student Engagement in Civil Education Classrooms (SECEC) scale as well. This model showed superiority over the other models. Perhaps the idiosyncratic nature of categories affected respondent styles. Overall, the infit mean square (IMS) for this model stayed stable after deleting misfitting items both for the DCCEC and SECEC scales from 1.00 (0.13) to 1.01 (0.09) and from 0.99 (0.17) to 0.98 (0.11) respectively.

Item Ordering

Examining the order of items along the continuum is one of the practices recommended to establish the validity of measures (Fox and Jones, 1998).

Figure 1 shows the ordering of the Democratic Climate items and persons on the calibrated scale. The 33 items for DCCEC scale were entered in the analysis using dichotomous scoring (0011=*never/rarely, sometimes/often*). The threshold is the default representation of item difficulty used by Quest. For an item step, this is the ability level that is required for a person to have a 50 per cent chance of passing the step.

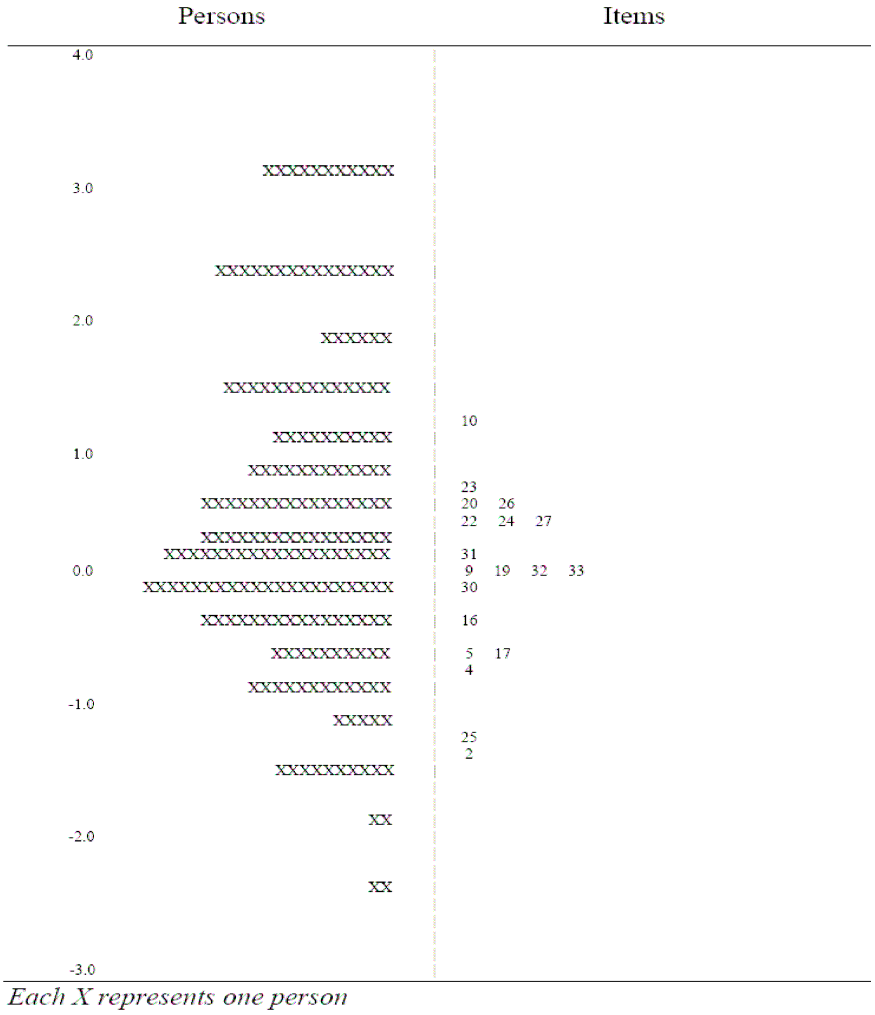

Figure 1. Item ordering for Democratic Climate of the Civic Education Classroom

In general, the ordering of items indicates logical meaning. For instance, the extreme location of Item 10, *"We do not use a text book for the Citizenship Education class, but we discuss materials from newspapers, magazines, and TV shows*," is consistent with the real situation of the way teaching is conducted in North Sulawesi. Most teachers use the text book as the primary medium of instruction. This, to some extent, precludes teachers from introducing flexibility into the classroom. Figure 1 shows that Item 10 comes together with Items 23, 20, 26, 22, 24 and 27 as the most difficult to agree with. These items involve activities that are less likely to be achieved in the class as long as the text book dominates instruction. Items 31, 9, 19, 32, 33 and 30 make up a group of items in the middle location. These items are related to the relevance of material taught and student decision-making. Items 2, 25, 4, 5 and 17 form the easiest group of items that reflect the conventional situation of school classrooms in North Sulawesi. Teachers are usually willing to

share ideas with students in order to assess student performance. Students are discussing political or social issues related to the materials taught where sharing ideas among class members occurs. Finally students are asked to review their previous lessons at home or in the class.

Figure 2 shows the ordering of items and persons of the calculated scale for Student Engagement. Regarding the ordering of items for the SECEC scale, the scale seems to be ordered in a meaningful way. Item 7, "*I lead group discussion in the Citizenship Education classroom*," is found to be the most difficult item in the scale because not every student can have this opportunity in every class. Item 4, "*I follow the rules in the Citizenship Education classroom*" turns to be the easiest item. This reflects the effects of teacher power in the classroom in North Sulawesi, Indonesia on student behaviour.

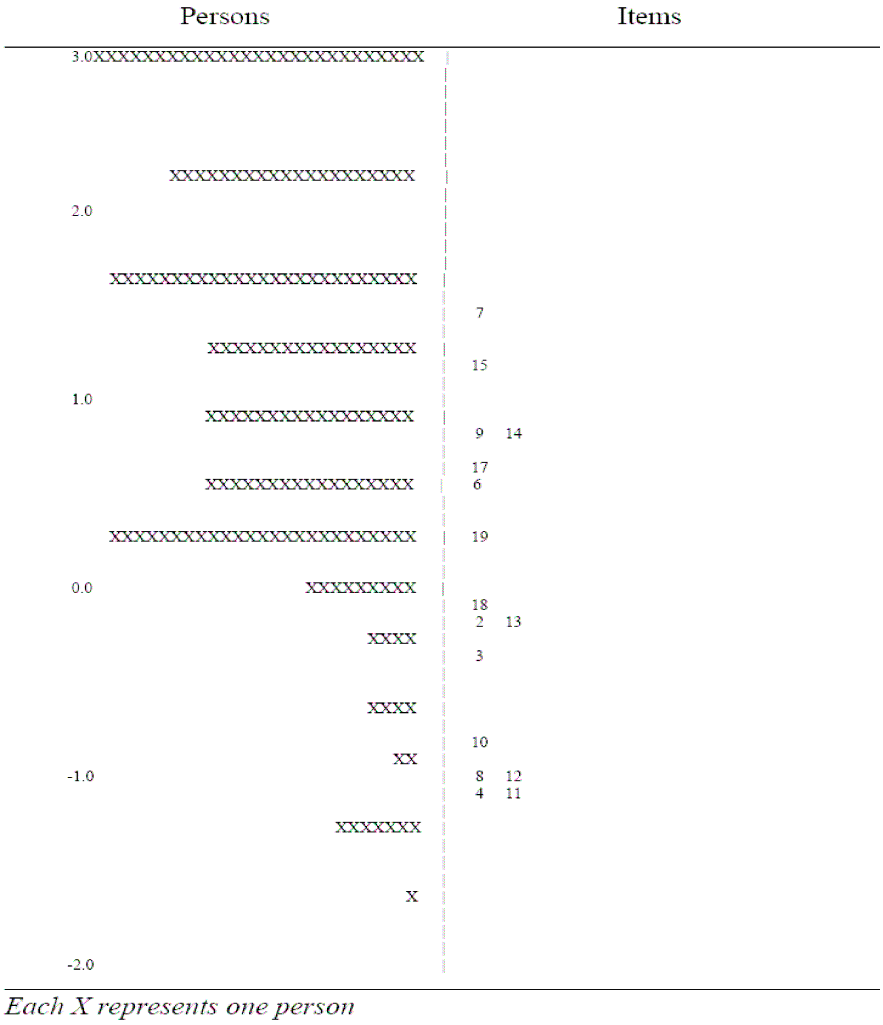

Figure 2. Item ordering for Student Engagement in the Civic Education Classroom

Students tend to obey the classroom rules and are reluctant to protest against the established rules. Figure 2 also shows that the grouping pattern of items makes sense. The item estimate produces four different groups. These groups are Group 1, Items 7 and 15; Group 2, Items 9, 14, 17, 6 and 19; Group 3, Items 18, 2, 13 and 3; and Group 4, Items 10, 8, 12, 4 and 11. This item group configuration is formed in a way that indicates the reality of student engagement style in the Civic Education classroom in North Sulawesi. For example, in Group 2, these items are about being bored, studying Civic Education materials at home when there is no test, checking Civic Education work for mistakes, asking questions in class, and reading extra books about citizenship. When those items come into the second level of item difficulty simply because students in North

Sulawesi can be said to enjoy Civic Education class, but they do not make much effort to learn the subject.

Person and Item Fit

In order to examine person and item fit, the Rasch model provides four fit statistics: infit and outfit statistics that are expressed as infit mean square or outfit mean square indices (Huang and Page, 2002; Wright and Masters, 1982). The infit mean square (IMS) index is preferred to the others, because it is found to be less sensitive to the sample size (Fox and Jones, 1998). Infit mean square values in the range of 0.78 to 1.30 are used (Bond and Fox, 2001). Values less than 0.78 generally indicate significant overfit, and values greater than 1.30 indicate significant underfit. Both underfitting and overfitting items are generally considered misfitting.

In assessing items, discrimination and differential item functioning (DIF) are also taken into consideration. Item discrimination is the ability of an item to separate respondents into high and low ability. Its values correspond to the steepness of curves, and the greater steepness is preferable. Differential item functioning (DIF) analysis involves examining how different groups of respondents perform on the scale (Adams, 1992; Fayers and Machin, 2002).

Three items of the 33 DCCEC scale items were underfitting and eleven items have low discrimination index (<0.30). These undefitting items are Items 11, 12 and 13, whereas low discrimination items are Items 1, 3, 6, 7, 8, 14, 15, 18, 21, 28 and 29. The discrimination index for fitting items is in the range of 0.30 to 0.59. All items of the 19 SECEC scale have fitting MS values. However, three of them have low discrimination values. These items are 1, 5 and 16.

With respect to the item DIF, overall values for both scales after trimming are insignificant in terms of respondent gender (Table 3). Three items of the DCCEC scale and one item of the SECEC scale have significant DIF. These items are 4, 23 and 32 of DCCEC scale and item number 18 of the SECEC scale. These items should be used in the future studies with caution.

In the final analysis of items, ISR and ISI for both scales show superior reliability to the PSR and PSI for the measured variable. This indicates that item scale order was more reliable than person scale order. ISR for DCCEC is 5.61, and its PSI is 2.63, whereas for SECEC is 5.26, and its PSI is 1.96.

CONCLUSION

The Rasch Rating Scale model was used in the analysis of the data on the Democratic Climate of Civic Education Classroom (DCCEC) scale and the Student Engagement in Civic Education Classroom (SECEC) scale. The study reveals five important points for both scales. First, the item reliabilities for both scales are higher than person reliabilities. This makes the items more reliable to use regardless of respondents in other studies. Second, the original category scheme (0123) set for the scales proved to be inferior to other models in the analysis. Instead, 0011 model is more superior than the others. This reveals that ‘rarely’ and ‘sometimes’ categories are not very effective in detecting variation in the responses of the students in the sample. Third, the scale order and grouping of items for both scales in the scale difficulty estimate would seem to show consistency with the contextual situation of the Civic Education class practices in North Sulawesi, Indonesia although this statement has not been substantiated in this study. Fourth, IMS values for both scales reveal balance in variation. For DCCEC scale, of 19 fitting items (≥ 0.78 to ≤ 1.3), nine items are over 1.00, nine others are under 1.00, and one item is 1.00, whereas SECEC, six items are over 1.00, and ten others are under 1.00. Fifth, overall DIF for both scales shows insignificant differences in performance between males and females on the measured variable. This indicates that the subgroups are comparable on the scale, and there is little sign of highly significant differential item functioning between the sexes.

Table 3. Item fit indices for both DCCEC and SECEC

Item fit for Democratic Climate of Civic Education Classroom scale								
	Indices						DIF in term of gender	
Items	Thresholds	IMS	OMS	INFT t	OUTFT t	Disc.	χ^2	*p*
2	-1.36	1.10	1.11	0.88	0.51	0.30	1.54	0.21
4	-0.74	0.96	0.84	-0.52	-0.87	0.46	4.70	0.03
5	-0.52	0.97	0.94	-0.41	-0.29	0.46	1.90	0.17
9	0.10	1.05	1.02	0.78	0.22	0.43	0.17	0.68
10	1.14	1.17	1.23	2.01	1.58	0.38	0.18	0.67
16	-0.36	0.96	0.87	-0.60	-0.87	0.49	0.07	0.79
17	-0.55	1.00	0.96	0.00	-0.18	0.44	0.28	0.59
19	0.10	0.95	0.88	-0.87	-0.89	0.51	0.52	0.47
20	0.52	1.13	1.18	1.97	1.44	0.39	2.52	0.11
22	0.47	1.02	1.00	0.36	0.02	0.47	0.79	0.37
23	0.69	0.85	0.80	-2.27	-1.72	0.59	4.48	0.03
24	0.42	0.97	0.90	-0.39	-0.83	0.50	1.13	0.29
25	-1.22	1.09	1.07	0.92	0.38	0.32	0.02	0.88
26	0.54	0.85	0.77	-2.34	-1.94	0.59	2.83	0.09
27	0.47	1.03	1.00	0.45	0.07	0.46	0.33	0.57
30	-0.05	0.90	0.88	-1.68	-0.89	0.55	0.11	0.74
31	0.19	1.09	1.16	1.40	1.26	0.41	0.00	0.97
32	0.10	1.00	0.99	0.00	-0.03	0.47	5.20	0.02
33	0.07	1.02	0.95	0.40	-0.37	0.47	0.36	0.55
ISR/PSR	0.93	0.76			ChiSQ = 27.15 (df =18, p = 0.08)			
ISI/PSI	*5.61*	*2.63*						
Item fit for Student Engagement in Civic Edu. Classroom scale								
2	-0.18	0.99	0.95	-0.04	-0.20	0.47	0.00	0.99
3	-0.37	0.95	0.78	-0.47	-1.03	0.50	2.26	0.11
4	-1.08	0.94	0.77	-0.34	-0.66	0.43	0.45	0.50
6	0.54	1.01	0.96	0.23	-0.25	0.50	0.07	0.79
7	1.46	1.10	1.43	1.37	2.89	0.43	0.64	0.42
8	-1.03	0.86	1.26	-0.94	0.87	0.47	0.81	0.37
9	0.82	1.29	1.50	3.88	3.41	0.36	3.30	0.07
10	-0.78	0.90	0.76	-0.75	-0.87	0.47	0.89	0.35
11	-1.14	0.83	0.62	-1.05	-1.21	0.50	0.00	0.96
12	-0.98	0.89	0.79	-0.75	-0.63	0.47	1.18	0.28
13	-0.18	1.02	0.88	0.27	-0.57	0.46	0.00	0.99
14	0.79	0.90	0.88	-1.45	-0.94	0.59	1.05	0.31
15	1.21	1.09	1.18	1.21	1.42	0.46	0.06	0.45
17	0.65	0.99	1.10	-0.10	0.75	0.53	0.12	0.73
18	-0.05	0.89	0.82	-1.21	-0.96	0.56	4.91	0.03
19	0.30	1.01	0.93	0.18	-0.38	0.49	0.31	0.58
ISR/PSR	*0.95*	*0.63*			ChiSQ = 16.93.15 (df =15, p = 0.32)			
ISI/PSI	*5.26*	*1.96*						

REFERENCES

Adams, R. J. (1992). Item bias. In J. P. Keeves (Ed.), *The IEA Technical Handbook*. The Hague: IEA.

Adams, R. J., and Khoo, S. (1993). *Quest: The Interactive Test Analysis System.* [statistical software]. Hawthorn, Victoria: ACER.

Aikins, J. W., Bierman, K. L., and Parker, J. G. (2005). Navigating the transition to junior high school: The influence of pre-transition friendship and self-system characteristics. *Social Development, 14*(1), 42-60.

Alexander, K. L., Entwisle, D. R., and Dauber, S. L. (1993). First-grade classroom behavior: Its short- and long-term consequences for school performance. *Child Development, 64* (3), 801-815.

Alexander, K. L., Entwisle, D. R., and Horsey, C. S. (1997). From first grade forward: Early foundations of high school dropout. *Sociology of Education, 70* (2), 87-108.

Allodi, M. W. (2002). A two-level analysis of classroom climate in relation to social context, group composition, and organizational of special support. *Learning Environments Research, 5*(5), 253-274.

Alvermann, D. E., Dillon, D. R., and O'Brien, D. G. (1987a). *Using Discussion to Promote Reading Comprehension*. Newark, Del.: International Reading Association.

Alvermann, D. E., Moore, D. W., and Conley, M. W. (1987b). *Research Within Reach: Secondary School Reading: A Research Guided Response to Concerns of Reading Educators*. Newark, Del.: International Reading Association.

Ames, C. (1992). Classrooms: Goals, structures, and student motivation. *Journal of Educational Psychology, 84*(3), 261.

Ames, C., and Archer, J. (1988). Achievement goals in the classroom: Students' learning strategies and motivation processes. *Journal of Educational Psychology, 80* (3), 260.

Anonymous. (1988). Urie Bronfenbrenner. *American Psychologist, 43* (4), 254-255.

Bandura, A. (1986). *Social Foundations of Thought and Action: A Social Cognitive Theory*. Englewood Cliffs, N.J.: Prentice-Hall.

Barker, R. G., and Gump, P. V. (1964). *Big School, Small School: High School Size and Student Behavior*. Stanford, Calif.: Stanford University Press.

Bates, L., Luster, T., and Vandenbelt, M. (2003). Factors related to social competence in elementary school among children of adolescent mothers. *Social Development, 12*(1), 107-124.

Battistich, V., Schaps, E., Watson, M., Solomon, D., and Lewis, C. (2000). Effects of the child development project on students' drug use and other problem behaviors. *Journal of Primary Prevention, 21*(1), 75-99.

Belenky, M. F. (1997). *Women's Ways of Knowing: The Development of Self, Voice, and Mind* (10 ed.). New York: Basic Books.

Bond, T. G., and Fox, C. M. (2001). *Applying the Rasch model: Fundamental Measurement in the Human Sciences*. New Jersey: Lawrence Erlbaum Associates.

Bronfenbrenner, U. (1977). Toward an experimental ecology of human development. *American Psychologist, 32*, 513–531.

Brown, A. L. (1997). Transforming schools into communities of thinking and learning about serious matters (abstract). *The American Psychologist, 52*(4), 399-414.

Chang, L. (2003). Variable effects of children's aggression, social withdrawal, and prosocial leadership as functions of teacher beliefs and behaviors. *Child Development, 74*(2), 535-548.

Chen, X., Chang, L., He, Y., and Liu, H. (2005). The peer group as a context: Moderating effects on relations between maternal parenting and social and school adjustment in Chinese children. *Child Development, 76*(2), 417-434.

Clark, A., Anderson, R. C., Kuo, L., Kim, I., Archodidou, A., and Nguyen-Jahiel, K. (2003). Collaborative reasoning: Expanding ways for children to talk and think in school. *Educational Psychology Review, 15*(2), 181-198.

Compeau, D., Higgins, C. A., and Huff, S. (1999). Social cognitive theory and individual reactions to computing technology: A longitudinal study. *MIS Quarterly, 23*(2), 145-159.

Conchas, G. Q. (2001). Structuring failure and success: Understanding the variability in Latino school engagement. *Harvard Educational Review, 71*(3), 475-505.

Connell, J. P., Spencer, M. B., and Aber, J. L. (1994). Educational risk and resilience in African-American youth: Context, self, action, and outcomes in school. *Child Development, 65*(2), 493-507.

Conrad, A. E. (2004). Inclusive urban schools. *Education Week, 23*(19), 38.

Denham, S. A., Blair, K. A., DeMulder, E., Levitas, J., Sawyer, K., Sharon Auerbach-Major, S., *et al.* (2003). Preschool emotional competence: Pathway to social competence?. *Child Development, 74* (1), 238.

Dorman, J. P. (2003). Cross-national validation of the `*What is happening in this class*` (WIHIC) questionnaire using confirmatory factor analysis. *Learning Environments Research, 6*, 231-245.

Fayers, P. M., and Machin, D. (2002). *Quality of life.* Electronic version: John Wiley.

Finn, J. D. (1989). Withdrawing from school. *Review of Educational Research, 59*(2), 117-143.

Finn, J. D., Folger, J., and Cox, D. (1991). Measuring participation among elementary grade students. *Educational and Psychological Measurement, 51*(2), 393.

Finn, J. D., and Pannozzo, G. M. (2004). Classroom organization and student behavior in kindergarten. *The Journal of Educational Research, 98* (2), 79-93.

Finn, J. D., Pannozzo, G. M., and Voelkl, K. E. (1995). Disruptive and inattentive-withdrawn behavior and achievement among fourth graders. *The Elementary School Journal, 95*(5), 421-435.

Finn, J. D., and Rock, D. A. (1997). Academic success among students at risk for school failure. *Journal of Applied Psychology, 82*(2), 221-234.

Finn, J. D., and Voelkl, K. E. (1993). School characteristics related to student engagement. *The Journal of Negro Education, 62*(3), 249.

Fox, C. M., and Jones, J. A. (1998). Uses of Rasch modeling in counselling psychology research. *Journal of Counselling Psychology, 1*, 30-45.

Fredricks, J. A., Blumenfeld, P., Fiedel, J. M., and Paris, A. (2002, March). Increasing engagement in urban settings: An analysis of the influence of the social and academic context on student engagement. [Online] http://edtech.connect.msu.edu/Searchaera2002/viewproposaltext.asp?prodID=2635 [August 28, 2004].

Fredricks, J. A., Blumenfeld, P., Friedel, J., and Paris, A. (2003, March 11-13). School engagement. Paper presented at The Indicators of Positive Development Conference, Child Trends.

Fredricks, J. A., Blumenfeld, P. C., and Paris, A. H. (2004). School engagement: Potential of the concept, state of the evidence. *Review of Educational Research, 74*(1), 59-109.

Fredricks, J. A., and Eccles, J. S. (2002). Children's competence and value beliefs from childhood through adolescence: Growth trajectories in two male-sex-typed domains. *Developmental Psychology, 38*(4), 519-533.

Furrer, C., and Skinner, E. (2003). Sense of relatedness as a factor in children's academic engagement and performance. *Journal of Educational Psychology, 95*(1), 148.

Greeno, J. G. (1998). The situativity of knowing, learning, and research. *American Psychologist, 53*(1), 5-26.

Guthrie, J. T., and Cox, E. K. (2001). Classroom conditions for motivation and engagement in reading. *Educational Psychology Review, 13*(3), 283-302.

Guthrie, J. T., Cox, K. E., Anderson, E., Harris, K., Mazzoni, S., and Rach, L. (2001). Principles of integrated instruction for engagement in reading. *Educational Psychology Review, 13*, 283-302.

Guthrie, J. T., and Wigfield, A. (2000). Engagement and motivation in reading. In M. Kamil and P. Mosenthal (Eds.), *Handbook for Reading Research* (Vol. 3, pp. 403-422). Mahwah, NJ.: Lawrence Erlbaum.

Huang, Y., and Page, A. L. (2002). Using Rasch modeling to improve the measurement of service quality: An illustration. *American Journal of Education* [Conference proceeding], 216-223.

Johnson, B., and McClure, R. (2004). Validity and reliability of a shortened, revised version of the constructivist environment survey (CLES). *Learning Environments Research, 7*, 65-80.

Kern, L., Delaney, B., Clarke, S. D., G., and Childs, K. (2001). Improving the classroom behavior of students with emotional and behavioral disorders using individualized curricular modifications. *Journal of Emotional and Behavioral Disorders, 9*(4), 239-247.

Khine, M. S., and Fisher, D. L. (2004). Teacher interaction in psychosocial learning environments: Cultural differences and their implications in science instruction. *Research in Science and Technological Education, 22* (1), 99.

Kim, H., Fisher, D. L., and Fraser, B. J. (1999). Assessment and investigation of constructivist science learning environments in Korea. *Research in Science and Technological Education, 17*(2), 239-149.

Kindermann, T. A. (1993). Natural peer groups as contexts for individual development: The case of children's motivation in school. *Developmental Psychology, 29*(6), 970-977.

Kubow, P. K., and Kinney, M. B. (2000). Fostering democracy in middle school classrooms: Insights from a democratic institute in Hungary. *The Social Studies, 91*(6), 265- 271.

Ladd, G. W., Birch, S. H., and Buhs, E. S. (1999). Children's social and scholastic lives in kindergarten: Related spheres of influence? *Child Development, 70*(6), 1373-1381.

Lewin, K. (1951). *Field theory in social science: Selected theoretical papers*. N.Y.: Harper and Row.

Luster, T., Bates, L., Vandenbelt, M., and Nievar, M. A. (2004). Family advocates' perspectives on the early academic success of children born to low income adolescent mothers. *Family Relations, 53*(1), 68-77.

Meece, J. L. (2003). Applying learner-centered principles to middle school education. *Theory into Practice, 42*(2), 109-116.

Meehan, B. T., Hughes, J. N., and Cavell, T. A. (2003). Teacher student relationships as compensatory resources for aggressive children. *Child Development, 74*(4), 1145.

Miller, S. D., and Meece, J. L. (1997). Enhancing elementary students' motivation to read and write: A classroom intervention study. *The Journal of Educational Research, 90*(5), 286-300.

Miller, S. D., and Meece, J. L. (1999). Third graders' motivational preferences for reading and writing tasks. *The Elementary School Journal, 100*(1), 19-26.

Moos, R. H. (1979). *Evaluating Educational Environments.* San Francisco: Jossey-Bass.

Morgenstern, C., and Keeves, J. P. (1997). Descriptive scales. In J. P. Keeves (Ed.), *Educational research, methodology, and measurement: An international handbook* (2 ed., Vol. 1, pp. 900-908). Oxford: Pergamon.

Newhouse, C. P. (2001). Development and use of an instrument for computer-supported learning environments. *Learning Environments Research, 4*, 115-138.

Palincsar, A. S. (1998). Social constructivist perspectives on teaching and learning. *Annu. Rev. Psychol., 49*, 345-375.

Parsons, E. C. (2002). Using comparisons of multi-age learning environments to understand two teachers' democratic aims. *Learning Environments Research, 5*, 185-202.

Randolph, G. B. (2000). Collaborative learning in the classroom: A writing across the curriculum approach. *Journal of Engineering Education, 89*(2), 119-122.

Roeser, R. W., Midgley, C., and Urdan, T. C. (1996). Perceptions of the school psychological environment and early adolescents' psychological and behavioral functioning in school: The mediating role of goals and belonging. *Journal of Educational Psychology, 88*(3), 408.

Rosch, E. (2002). Lewin's field theory as situated action in organizational change. *Organization Development Journal, 20*(2), 8-14.

Ryan, A. M., and Patrick, H. (2001). The classroom social environment and changes in adolescents' motivation and engagement during middle school. *American Educational Research Journal, 38*(2), 437-460.

Skinner, E. A., and Belmont, M. J. (1993). Motivation in the classroom: Reciprocal effects of teacher behavior and student engagement across the school year. *Journal of Educational Psychology, 85*(4), 571-581.

Snyder, J., Brooker, M., Patrick, M. R., Snyder, A., Schrepferman, L., and Stoolmiller, M. (2003). Observed peer victimization during early elementary school: Continuity, growth, and relation to risk for child antisocial and depressive behavior. *Child Development, 74*(6), 1881-1898.

Spira, E. G., and Fischel, J. E. (2005). The impact of preschool inattention, hyperactivity, and impulsivity on social and academic development: A review. *Journal of Child Psychology and Psychiatry, 46*(7), 755–773.

Torney-Purta, J. (1984). Evidence for balancing content with process and balancing answers with questions: The contribution of psychology to the civic education of teachers. In A. H. Jones (Ed.), *Civic Learning for Teachers: Capstone for Educational Reform.* Proceedings of the seminar on civic learning in the education of the teaching profession at Hoover institution on war, revolution and peace Standford university, California. Michigan: Prakken Publications.

Torney-Purta, J., Oppenheim, A. N., and Farnen, R. F. (1975). *Civic Education in Ten Countries: International Studies in Evaluation VI.* Stockhom: Almqvist and Wiksell International.

Turner, J., and Scott, P. (1995). How literacy tasks influence children's motivation for literacy. *The Reading Teacher, 48*(8), 662-674.

Turner, J. C., Meyer, D. K., Cox, K. E., and Logan, C. (1998). Creating contexts for involvement in mathematics. *Journal of Educational Psychology, 90*(4), 730-746.

Urdan, T. C., and Maehr, M. L. (1995). Beyond a two-goal theory of motivation and achievement: A case for social goals. *Review of Educational Research, 65*(3), 213.

Valeski, T. N., and Stipek, D. J. (2001). Young children's feelings about school. *Child Development, 72*(4), 1198-1214.

Voelkl, K. E., Welte, J. W., and F., W. W. (1999). Schooling and delinquency among white and African American adolescents. *Urban Education, 34*(1), 69-89.

Walberg, H. J. (1979). *Educational Environments and Effects: Evaluation, Policy, and Productivity*. Berkeley, Calif.: McCutchan.

Waldrip, B. G., and Fisher, D. L. (2003). Identifying exemplary science teachers through their classroom interactions with students. *Learning Environment Research, 6*, 157-174.

Watzlawick, P., Beavin, J. H., and Jackson, D. D. (1968). *Pragmatics of Human Communication: A Study of Interactional Patterns, Pathologies, and Paradoxes*. London: Faber.

Wentzel, K. R. (1991). Social competence at school: Relation between social responsibility and academic achievement. *Review of Educational Research, 61*(1), 1-24.

Wentzel, K. R. (1997). Friendships, peer acceptance, and group membership: Relations to academic achievement in middle school. *Child Development, 68*(6), 1198-1209.

Wentzel, K. R. (2002). Peer relationships and collaborative learning as contexts for academic enablers. *School Psychology Review, 31*(3), 366-378.

Wentzel, K. R. (2003). Motivating students to behave in socially competent ways. *Theory in Practice, 42*(4), 319-326.

Wright, B. D., and Masters, G. N. (1982). *Rating Scale Analysis: Rasch Measurement*. Chicago: MESA Press.

Zhu, W., Timm, G., and Ainsworth, B. (2001). Rasch calibration and optimal categorization of an instrument measuring womens' exercise perseverance and barriers. *Research Quarterly for Exercise and Sport, 72*, 104-116.

APPENDIX A

Fit Indices for all Items at the First Run of Rasch Analysis

Item fit for Democratic Climate of Civic Education Classroom scale								
	Indices						DIF in term of gender	
Items	Thresholds	IMS	OMS	INFT t	OUTFT t	Disc.	χ^2	*p*
1	-2.09	0.97	0.90	-0.13	-0.31	0.27	1.29	0.26
2	-1.35	0.97	0.89	-0.21	-0.57	0.32	1.36	0.24
3	0.31	1.23	1.27	4.58	2.74	0.05	1.19	0.28
4	-0.78	0.93	0.84	-0.96	-1.29	0.42	3.95	0.05
5	-0.57	0.91	0.88	-1.42	-1.02	0.44	1.41	0.24
6	-0.60	1.02	1.10	0.36	0.89	0.27	1.74	0.29
7	2.15	0.98	0.95	-0.10	-0.16	0.28	0.04	0.84
8	2.84	1.09	1.22	0.46	0.79	0.06	0.03	0.85
9	-0.01	0.94	0.92	-1.13	-0.89	0.41	0.42	0.52
10	0.90	0.97	0.96	-0.42	-0.36	0.35	0.76	0.38
11	0.92	1.33	1.52	5.04	4.27	-0.15	0.14	0.70
12	0.38	1.34	1.39	6.46	3.84	-0.10	3.74	0.05
13	0.67	1.30	1.37	5.35	3.46	-0.06	8.66	0.00
14	-1.50	0.99	1.34	-0.08	1.68	0.25	3.47	0.06
15	-1.50	0.96	0.91	-0.31	-0.41	0.32	3.47	0.06
16	-0.43	0.90	0.83	-1.74	-1.67	0.47	0.01	0.93
17	-0.60	0.94	0.89	-0.89	-0.93	0.41	0.14	0.72
18	2.59	1.15	1.88	0.85	2.75	-0.10	2.14	0.24
19	-0.01	0.87	0.83	-2.80	-1.85	0.51	0.90	0.34
20	0.36	1.02	1.01	0.40	0.10	0.31	1.32	0.35
21	-0.73	0.99	1.06	-0.13	0.48	0.31	2.89	0.09
22	0.31	0.95	0.94	-1.16	-0.64	0.41	0.25	0.62
23	0.51	0.84	0.82	-3.58	-1.97	0.54	0.02	0.02
24	0.27	0.94	0.94	-1.20	-0.69	0.40	1.77	0.18
25	-1.22	0.93	0.88	-0.68	-0.70	0.39	0.04	0.84
26	0.38	0.84	0.81	-3.66	-2.20	0.54	3.74	0.05
27	0.31	0.93	0.91	-1.59	-0.95	0.43	0.04	0.84
28	0.49	1.06	1.11	1.22	1.16	0.23	1.13	0.29
29	-1.88	1.02	1.05	0.17	0.28	0.21	1.38	0.24
30	-0.15	0.89	0.86	-2.18	-1.51	0.48	0.01	0.93
31	0.07	0.93	0.92	-1.44	-0.89	0.42	0.06	0.81
32	-0.01	0.92	0.90	-1.60	-1.10	0.44	5.89	0.02
33	-0.04	0.91	0.88	-1.85	-1.26	0.45	0.68	0.41
ISR/PSR	0.98	0.70			ChiSQ = 59.73 (df = 32, p = 0.00)			
ISI/PSI	*10.58*	*2.29*						
Item fit for Student Engagement in Civic Edu. Classroom scale								
1	0.08	1.18	1.18	2.18	1.14	0.28	1.42	0.23
2	-0.35	0.97	0.91	-0.29	-0.41	0.44	0.00	0.96
3	-0.52	0.94	0.74	-0.58	-1.23	0.47	2.34	0.13
4	-1.21	0.97	0.74	-0.16	-0.78	0.38	0.37	0.55
5	1.88	1.58	1.96	6.42	5.3	0.03	0.24	0.63
6	0.33	0.94	0.90	-0.91	-0.71	0.5	0.04	0.85
7	1.16	0.97	1.08	-0.42	0.68	0.44	0.46	0.50
8	-1.15	0.85	0.86	-1.02	-0.36	0.46	0.88	0.35
9	0.59	1.12	1.12	1.84	0.97	0.37	3.29	0.07
10	-0.92	0.88	0.71	-0.86	-1.11	0.47	0.96	0.33
11	-1.26	0.84	0.60	-0.98	-1.3	0.48	0.01	0.92
12	-1.11	0.89	0.72	-0.72	-0.95	0.45	1.26	0.26
13	-0.35	0.97	0.78	-0.29	-1.12	0.46	0.00	0.96
14	0.57	0.87	0.81	-2.07	-1.56	0.56	1.12	0.29
15	0.94	1.00	1.00	0.1	0.04	0.44	0.41	0.52
16	0.97	1.09	1.12	1.44	0.99	0.39	0.25	0.62
17	0.44	0.92	0.91	-1.15	-0.67	0.52	0.07	0.79
18	-0.22	0.88	0.87	-1.28	-0.65	0.52	4.45	0.03
19	0.11	0.94	0.83	-0.79	-1.12	0.49	0.37	0.55
ISR/PSR	0.96	0.67				ChiSQ = 17.92 (df =18, p = 0.46)		
ISI/PSI	*6.63*	*2.07*						

APPENDIX B

List of items examined

Descriptive information for seven scales of the Democratic Climate of Civic Ed. Classroom Scale		
Scale	**Description**	**Item**
1. Active participation	Sharing ideas and among peers and facilitators; teachers do not take a stand as an authority on civic subjects; teachers share impressions on class activities with students.	1. We feel free to share ideas in class. (LD) 2. Teachers share ideas with us. 3. Teachers expect us to take their opinions as ultimate decisions on civic education subjects. (R; LD) 4. We are encouraged to give feedback to our classmates' opinions. 5. Teachers encourage us to give feedback to their opinions on social and citizenship issues. 6. Teachers share their impressions of Citizenship Education class activities with us. (LD)
2. Avoidance of textbook dominated instructions	Avoiding textbooks based instructions.	7. Teachers lecture from the textbook and we take notes. (R; LD) 8. We work on materials from textbooks. (R; LD) 9. Teachers present Citizenship Education materials in class from textbooks supported with many other resources, like newspapers, magazines, radio, etc. 10. We do not use a textbook for the Citizenship Education class, but we discuss materials from newspaper, magazines, and TV shows.
3. Reflective thinking	Not focusing on fact or date memorisation, encouragement on countering different opinions and information in open classroom, reflection on class activities.	11. Teachers place great emphasis on learning facts or dates when presenting history or political events. (R; MS) 12. Memorising dates and facts is the best way to get a good mark from teachers in this class. (R; MS) 13. Teachers require us to memorise dates or definitions. (R; MS) 14. We are encouraged to compare our opinions with our peers. (LD) 15. Teachers present several sides of an issue when explaining it in class. (LD) 16. We are encouraged to make arguments supporting our own opinions. 17. We are encouraged to review our previous class activities.
4. Student decision-making and problem-solving choices	Freedom for students to examine social or political issues in civics class; freedom for students to participate and influence the decision making in citizenship classes.	18. Teachers determine the class discussion topics. (R; LD) 19. We are encouraged to make up our own minds about issues. 20. We are encouraged to choose types of activities in class. 21. To form a discussion group, we are encouraged to take our own initiative. (LD) 22. We are encouraged to assess our own class activities
5. Controversial issues	Teachers bring controversial issues into civics class; allow students to discuss controversial issues in civics class.	23. Teachers raise controversial issues in the class. 24. Teachers encourage us to discuss political or social issues that are controversial. 25. We discuss controversial political or social issues in class.
6. Recognizing human dignity	Be open to discussions; exhibit a willingness to listen; avoid unreflective judgments; questioning the views of peers and facilitators.	26. Other students are willing to listen when one student is explaining his/her opinions in front of the class. 27. We are encouraged not to make a judgment on an issue or view without good supporting arguments. 28. We feel free to disagree openly with our teachers' views. (LD) 29. Teachers respect our opinions and encourage us to express them during the class. (LD)
7. Relevance	Discussing issues relating to the past and present; discussing issues relating to local, national and international events.	30. We are encouraged to raise local political or social issues to be discussed in the class. 31. We are encouraged to identify current political events to be discussed in the class. 32. We are encouraged to examine the link between local, national, and international events in dealing with current issues. 33. We are encouraged to identify the characteristics of the past and present political events in class.

(continued)

Lists of Items Examined (Cont'd)

Descriptive information for seven scales of the Student Engagement in Civic Ed. Classroom Scale		
Scale	**Scale description**	**Item**
1. Behavioural engagement	Positive conducts (adhering to classroom norms), absence of disruptive behaviour such as skipping schools and getting in trouble; involvement in learning such as effort, persistence, concentration, attention, asking questions; and contribution to class discussions, participation in classroom activities.	1. I pay attention in the Citizenship Education class. (LD) 2. When I am in the Citizenship Education class, I just act as if I am working. (R) 3. I complete my Citizenship Education homework on time. 4. I follow the rules in the Citizenship Education classroom. 5. I get into trouble in the Citizenship Education classroom. (R; MS) 6. I ask questions in my Citizenship Education classroom. 7. I lead group discussions in the Citizenship Education classroom.
2 Emotional engagement	Students' affective reactions in civics classroom including interest, boredom, happiness, sadness, and anxiety.	8. I feel happy in the Citizenship Education class. 9. I feel bored in the Citizenship Education class. (R) 10. I feel excited by the work in the Citizenship Education class. 11. I like being in the Citizenship Education class. 12. I am interested in the Citizenship Education work at classroom.
3. Cognitive engagement	Students' investment in learning involving self-regulation, or being strategic.	13. When I read an article about citizenship, I ask myself questions to make sure that I understand. 14. I study Citizenship Education materials at home even when I don't have a test. 15. I try to watch TV shows about things we are doing in the Citizenship Education class. 16. I talk to the people outside the school about what I am learning inthe Citizenship Education class. (LD) 17. I check my Citizenship Education class work for mistakes. 18. If I don't understand what a word means when I am reading an article about citizenship matters, I do something to figure it out, like looking it up in a dictionary or asking someone. 19. I read extra books to learn more about things we are doing inthe Citizenship Education class.
Notes: (1) MF: Missfitting items; (LD): Low discrimination; R= Reversed		